In the Claims

Applicant has submitted a new complete claim set of claims including previously submitted claims and one new claim.

1.-18. (Cancelled)

19. (Previously presented) A method of promoting a cytotoxic lymphocyte response in a subject with an immune system deficiency, the method comprising administering to the individual a composition comprising an immunostimulatory nucleic acid molecule and a targeting means in an amount effective to promote a cytotoxic lymphocyte response, wherein the immunostimulatory nucleic acid in association with the targeting means.

20. (Previously presented) The method of claim 19, wherein the immunostimulatory nucleic acid comprises the sequence 5'-CG-3'.

21. (Previously presented) The method of claim 19, wherein the association is selected from the group consisting of an ionic bond and a covalent bond.

22. (Previously presented) The method of claim 19, wherein the targeting means is a molecule that binds to a target cell.

23. (Previously presented) The method of claim 22, wherein the target cell is selected from the group consisting of a B-cell, and a natural killer cell.

24. (Previously presented) The method of claim 19, wherein the targeting means is selected from the group consisting of a sterol, a lipid and a target cell specific binding agent.

25. (Previously presented) The method of claim 24, wherein the lipid is selected from the group consisting of a cationic lipid a virosome, and a liposome.

26. (Previously presented) The method of claim 24, wherein the target cell specific binding agent is a ligand recognized by a target cell specific receptor.

27. (Previously presented) The method of claim 19, wherein the immunostimulatory nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

28. (Previously presented) The method of claim 19, wherein the immune system deficiency is associated with a tumor or cancer.

29. (Previously presented) The method of claim 19, wherein the immune system deficiency is associated with an infection.

30. (Previously presented) The method of claim 19, wherein the immune system deficiency is associated with a treatment selected from the group consisting of chemotherapy and immunotherapy.

31. (Previously presented) The method of claim 19, wherein the immune system deficiency is associated with an immunodeficiency virus.

32. (Previously presented) The method of claim 19, wherein said immunostimulatory nucleic acid molecule is administered orally.

33. (Previously presented) The method of claim 19, wherein said immunostimulatory nucleic acid molecule is injected.

34. (Previously presented) A method of promoting a cytotoxic lymphocyte response in a subject with an immune system deficiency, the method comprising administering an immunostimulatory nucleic acid molecule in an amount effective to promote a cytotoxic lymphocyte response.

35. (Previously presented) The method of claim 34, wherein said immunostimulatory nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

36. (Previously presented) The method of claim 34, further comprising administering an antigen associated with a disease selected from the group consisting of a tumor, cancer, a bacterial infection, a viral infection, a fungal infection, and a parasite infection.

37. (Previously presented) The method of claim 34, wherein the immunostimulatory nucleic acid molecule is in association with a targeting means or a target cell specific binding agent, and wherein said association is selected from the group consisting of an ionic bond and a covalent bond.

38. (Previously presented) The method of claim 34, wherein the immune system deficiency is associated with a disease selected from the group consisting of a tumor and cancer.

39. (Previously presented) The method of claim 34, wherein the immune system deficiency is associated with an infection.

40. (Previously presented) The method of claim 34, wherein the immune system deficiency is associated with a treatment selected from the group consisting of chemotherapy and immunotherapy.

41. (Previously presented) The method of claim 34, wherein the infection is an immunodeficiency virus infection.

42. (Previously presented) The method of claim 34, wherein said immunostimulatory nucleic acid molecule is administered by a route selected from the group consisting of oral and transdermal routes of administration.

43. (Previously presented) The method of claim 34, wherein said immunostimulatory nucleic acid molecule is administered orally.

44. (Previously presented) The method of claim 34, wherein said immunostimulatory nucleic acid molecule is injected.

45. (Previously presented) A method of treating or eliminating a tumor in a subject with an immune system deficiency, comprising administering an immunostimulatory nucleic acid molecule selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

46. (Previously presented) The method of claim 45, further comprising administering an antigen associated with a disease selected from the group consisting a tumor, cancer, a bacterial infection, a viral infection, and a fungal infection.

47. (Previously presented) The method of claim 45, wherein the immunostimulatory nucleic acid molecule is in association with a target cell specific binding agent, and wherein said association is selected from the group consisting of an ionic bond and a covalent bond.

48. (Previously presented) A method of treating an infectious disease in a subject with an immune system deficiency, the method comprising administering an immunostimulatory nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

49. (Previously presented) The method of claim 48, wherein the infectious disease is caused by a pathogen.

50. (Previously presented) The method of claim 48, wherein the infectious disease is caused by a parasite infection.

51. (Previously presented) The method of claim 48, wherein the infectious disease is caused by a pathogen selected from the group consisting of cytomegalovirus, Mycobacterium tuberculosis, Mycobacterium avium, Toxoplasma gondii, a fungus, and varicella zoster virus.

52. (Previously presented) The method of claim 48, wherein the immune system deficiency is associated with a tumor or cancer.

53. (Previously presented) The method of claim 48, wherein the immune system deficiency is associated with an infection.

54. (Previously presented) The method of claim 31 or 53, wherein the immune system deficiency is associated with an immunodeficiency virus such as a human immunodeficiency virus.

55. (Previously presented) The method of claim 48, wherein the infectious disease is caused by a human immunodeficiency virus.

56. (Previously presented) A method of treating or preventing an immune system deficiency in a subject, the method comprising administering an immunostimulatory nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

57. (Previously presented) The method of claim 56, wherein the immune system deficiency is caused by cancer.

58. (Previously presented) The method of claim 56, wherein the immune system deficiency is caused by an infection.

59. (Previously presented) The method of claim 58, wherein the immunostimulatory nucleic acid molecule is administered orally.

60. (Previously presented) A method of increasing production of IFN-gamma in a subject with an immune system deficiency, the method comprising administering an immunostimulatory nucleic acid molecule in an amount effective to increase IFN-gamma production in a subject with an immune system deficiency.

61. (Previously presented) The method of claim 60, wherein the immunostimulatory nucleic acid molecule is in association with a target cell specific binding agent, and wherein said association is selected from the group consisting of an ionic bond and a covalent bond.

62. (Previously presented) A method of increasing secretion of a cytokine in vivo, the method comprising administering to a subject an immunostimulatory nucleic acid molecule in an amount sufficient to increase secretion of a cytokine.

63. (Previously presented) The method of claim 62, wherein the cytokine is RANTES.

64. (Previously presented) The method of claim 62, wherein the cytokine is secreted from a cell selected from the group consisting of a macrophage, a monocyte, and a lymphocyte.

65. (Previously presented) The method of claim 62, wherein the immunostimulatory nucleic acid molecule comprises the sequence 5'-purine-purine-CG-pyrimidine-pyrimidine-3'.

66. (Previously presented) The method of claim 62, wherein the immunostimulatory nucleic acid molecule comprises the sequence 5'-purine-TCG-pyrimidine-pyrimidine-3'.

67. (Previously presented) The method of claim 62, wherein the immunostimulatory nucleic acid molecule comprises a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

68. (Previously presented) The method of claim 62, wherein the immunostimulatory nucleic acid molecule comprises the sequence 5'-purine-purine-CG-pyrimidine-pyrimidine-CG-3'.

69. (Previously presented) A method of increasing antigen-specific cytokine secretion, comprising administering to a subject a composition comprising an immunostimulatory nucleic acid molecule and an antigen associated with a pathogenic organism, wherein the immunostimulatory nucleic acid molecule is present in an amount sufficient to increase secretion of a cytokine in response to the antigen.

70. (Previously presented) The method of claim 69, wherein the immunostimulatory nucleic acid molecule and the antigen are in association.

71. (Previously presented) The method of claim 69, wherein the immunostimulatory nucleic acid molecule and the antigen are in an association selected from the group consisting of an ionic bond and a covalent bond.

72. (Previously presented) The method of claim 69, wherein the antigen is associated with human immunodeficiency virus.

73. (Previously presented) A method of inhibiting an immunodeficiency virus infection in a subject, comprising administering to an individual an immunostimulatory nucleic acid molecule in an amount sufficient to inhibit an immunodeficiency virus infection.

74. (Previously presented) The method of claim 73, wherein the immunodeficiency virus is a human immunodeficiency virus.

75. (Previously presented) The method of claim 73, wherein the immunostimulatory nucleic acid molecule comprises the sequence 5'-purine-purine-CG-pyrimidine-pyrimidine-3'.

76. (Previously presented) The method of claim 73, wherein the immunostimulatory nucleic acid molecule comprises the sequence 5'-purine-TCG-pyrimidine-pyrimidine-3'.

77. (Previously presented) The method of claim 73, wherein the immunostimulatory nucleic acid molecule comprises a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

78. (Previously presented) The method of claim 73, wherein the immunostimulatory nucleic acid molecule is administered in a composition comprising the immunostimulatory nucleic acid molecule and an antigen associated with the immunodeficiency virus.

79. (Previously presented) A method of inhibiting a human immunodeficiency virus infection in vivo, comprising administering to an individual an immunostimulatory nucleic acid molecule in an amount sufficient to increase secretion of a cytokine and inhibit infection by the immunodeficiency virus.

80. (Previously presented) A method of inducing a cytotoxic lymphocyte response to an antigen, the method comprising administering to an individual an immunostimulatory nucleic acid molecule and an antigen in an amount effective to increase cytotoxic lymphocyte activity in response to the antigen.

81. (Previously presented) The method of claim 80, wherein said immunostimulatory nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TCG-pyrimidine-pyrimidine-3'; and a nucleotide sequence comprising one or more 5'-TCG-3' sequences.

82. (Previously presented) A method of increasing antigen-specific T lymphocyte activity in an immune-deficient individual, comprising administering to the individual a formulation comprising an immunostimulatory nucleic acid molecule and a high affinity binding molecule that results in high affinity binding to an immune cell in an amount effective to increase antigen-specific CTL activity, wherein the immunostimulatory nucleic acid is covalently linked to the high affinity binding molecule.

83. (Previously presented) The method of claim 82, wherein the immunostimulatory nucleic acid comprises the sequence 5' C-G 3'.

84. (Previously presented) The method of claim 82, wherein the high affinity binding molecule is an antigen associated with an intracellular pathogen.

85. (Previously presented) The method of claim 82, wherein the high affinity binding molecule is an antigen associated with a tumor.

86. (Previously presented) The method of claim 82, wherein the immunostimulatory nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of 5'-purine-purine-cytosine-guanine-pyrimidine-pyrimidine-3'; 5'-purine-TGC-pyrimidine-pyrimidine-3'; and 5'-(TGC)n -3', where n is greater than or equal to 1.

87. (Previously presented) The method of claim 82, wherein the individual has a reduced number of CD4 T+ lymphocytes due to a primary immunodeficiency.

88. (Previously presented) The method of claim 82, wherein the individual has a reduced number of CD4 T+ lymphocytes due to an acquired immunodeficiency.

89. (Previously presented) The method of claim 88, wherein the acquired immunodeficiency is a temporary immunodeficiency due to a treatment selected from the group consisting of radiation therapy to treat a cancer, chemotherapy to treat a cancer, immunosuppression following bone marrow transplantation, immunosuppression caused by treatment for an autoimmune disease, and immunosuppression following organ transplantation.

90. (Previously presented) The method of claim 88, wherein the acquired immunodeficiency is acquired immunodeficiency syndrome.

91. (Previously presented) The method of claim 82, wherein said immunostimulatory nucleic acid molecule is administered to a mucosal tissue.

92. (Previously presented) The method of claim 82, wherein said immunostimulatory nucleic acid molecule is administered systemically.

93. (New) The method of claim 80, wherein the individual has an immune system deficiency.